CONDITION

Urinary tract infection - children

A urinary tract infection is usually a bacterial infection affecting a child's bladder, kidneys, or urinary tubes.

WHAT IT IS
Bacterial infection of the bladder, kidneys, or urinary tubes

BODY SYSTEM
Urinary system

MAIN SYMPTOMS
Fever, painful urination, frequent urination, tummy or back pain

WHAT CAUSES IT
Usually bacteria entering the urinary tract

HOW IT IS DIAGNOSED
Urine testing and urine culture

MAIN TREATMENT
Antibiotics, fluids, and symptom relief

CAN IT BE CURED?
Yes - antibiotics usually clear the infection

IS IT AN EMERGENCY?
Sometimes - very unwell child or possible sepsis

LONG-TERM OUTLOOK
Most children recover fully with prompt treatment

Overview

A urinary tract infection, or UTI, happens when germs infect part of a child's urinary system. The urinary system includes the kidneys, the tubes from the kidneys to the bladder, the bladder, and the tube through which urine leaves the body.

Most childhood UTIs are caused by bacteria. A lower UTI affects the bladder and is sometimes called cystitis. An upper UTI affects one or both kidneys and is called pyelonephritis. Kidney infections usually cause more general illness than bladder infections.

UTIs matter because children often need antibiotic treatment. Young babies may have few clear symptoms, while older children can usually describe pain or changes when they urinate. Prompt assessment is especially important for babies, children with fever, and children who seem very unwell.

A UTI is not usually caused by poor parenting or a child being "unclean." Many children have one UTI, recover fully, and never have another.

Symptoms

Symptoms differ with age and with the part of the urinary tract affected.

Babies and toddlers may not be able to show where they hurt. Their symptoms can include:

In older children, a bladder infection may cause:

A kidney infection is more likely to cause fever, chills, vomiting, or pain in the side or back below the ribs. The child may look and feel more generally unwell.

These symptoms can have other causes. Strong-smelling urine alone, for example, may occur when a child has not had enough to drink. A urine test is needed to find out whether an infection is present.

- Fever, sometimes without an obvious cause
- Irritability, unusual sleepiness, or poor feeding
- Vomiting or diarrhoea
- Fewer wet nappies or difficulty passing urine
- Strong-smelling, cloudy, or blood-stained urine
- Poor weight gain when infections are persistent or repeated
- Pain, burning, or stinging when urinating
- Needing to urinate more often or very urgently
- Passing only small amounts of urine
- New daytime wetting or bedwetting
- Pain low in the tummy
- Cloudy, strong-smelling, or blood-stained urine

Causes and risk factors

Most UTIs happen when bacteria from around the bowel enter the urethra, the tube that carries urine out of the body. The bacteria can then reach the bladder and, sometimes, travel to the kidneys.

Girls develop UTIs more easily after infancy because their urethra is shorter and closer to the anus. During early infancy, UTIs are also seen in boys, particularly those who are uncircumcised. Circumcision status is only one risk factor and does not mean a child will develop an infection.

Other factors that can make a UTI more likely include:

Some children have vesicoureteral reflux, often shortened to VUR. This means urine can flow backwards from the bladder towards the kidneys. Many cases improve as a child grows, but significant reflux can increase the chance of repeated kidney infections.

- Constipation
- Regularly holding urine or not emptying the bladder fully
- Problems coordinating the bladder and bowel
- Reduced urine flow because of a blockage
- Urinary catheters
- Conditions affecting bladder control or nerve function
- Differences in how the kidneys, bladder, or urinary tubes developed

Diagnosis

A urine sample is needed to diagnose a UTI. Whenever possible, it should be collected before antibiotics like amoxicillin or doxycycline are started. Treatment should not be delayed to obtain a sample if a child is seriously unwell.

A clean-catch sample is often preferred. The genital area is cleaned, and urine is caught in a sterile container while the child urinates. Babies may need other collection methods. A catheter, which is a thin tube passed briefly into the bladder, may provide a more reliable sample than a collection bag. Bag samples are easily contaminated by bacteria from the skin.

A dipstick test can quickly look for signs of infection. Laboratory examination may check for white blood cells and bacteria. A urine culture grows and identifies bacteria from the sample. Culture helps confirm the diagnosis and shows which antibiotics are likely to work, but results usually take longer than a dipstick.

If the result is unclear, the sample may need to be repeated. This is common when bacteria from the skin or nappy area have contaminated the sample.

Most children do not need scans after one straightforward UTI. An ultrasound or other imaging may be considered for young babies, unusual or severe infections, repeated infections, poor

urine flow, or infections that do not improve as expected. Imaging looks for problems with the kidneys, bladder, or urine drainage.

Treatment and management

Bacterial UTIs are treated with antibiotics. The choice and method of treatment are based on the child's age, symptoms, test results, allergies, local antibiotic resistance, and whether the kidneys may be involved.

Children who can drink and take medicine may be treated at home with an antibiotic by mouth. A child who is very young, seriously unwell, dehydrated, or unable to keep medicine down may need hospital assessment and antibiotics through a vein.

A clinician may adjust the antibiotic when the urine culture result becomes available. Give the medicine for the full period prescribed, even if the child feels better sooner. Do not use leftover antibiotics or medicine prescribed for someone else.

Offer normal drinks regularly to avoid dehydration, but there is no need to force unusually large amounts. A pharmacist or clinician can advise about age-appropriate medicine for pain or fever. Children should not be given aspirin unless it has been specifically prescribed.

Symptoms often begin to settle after treatment starts. Arrange reassessment if the child is worsening or has not started improving within about 48 hours. Another diagnosis, a resistant bacterium, or a complication may need to be considered.

Children with repeated UTIs may be referred to a paediatric or urinary specialist. Management may include treating constipation, improving bladder habits, checking for structural problems, and sometimes preventive antibiotics. Long-term antibiotics are not needed for every child with recurrent infections.

Complications

Most childhood UTIs clear without lasting harm. Complications are more likely with kidney infections, repeated infections, unusual urinary anatomy, or delayed treatment.

Possible complications include:

Kidney scarring does not occur after every kidney infection. Its likelihood is influenced by factors such as the child's age, the severity and number of infections, and underlying urinary tract problems.

Repeated symptoms also affect daily life. Pain, wetting, school absence, and anxiety about

using the toilet can be distressing, even when there is no kidney damage. These concerns are appropriate topics for routine follow-up.

- Dehydration from fever, vomiting, or poor drinking
- Infection spreading into the bloodstream, called sepsis
- A collection of infection in or around a kidney, which is uncommon
- Kidney scarring after significant or repeated kidney infections
- High blood pressure or reduced kidney function in children with substantial scarring

Prevention

Not every childhood UTI can be prevented. Some happen because of anatomy or medical conditions that a child and family cannot control.

Helpful bladder and bowel habits may reduce risk for some children:

Children should not be blamed for wetting or urgency. Pressure and punishment can make toilet avoidance and constipation worse.

Cranberry products have not been shown to reliably prevent UTIs in all children. They should not replace assessment or antibiotics when an infection is suspected.

A specialist may recommend further measures for a child with repeated UTIs or an identified urinary tract problem. Preventive antibiotics are reserved for selected situations because they can cause side effects and contribute to antibiotic resistance.

- Encourage regular toilet visits rather than prolonged holding
- Give children enough time to empty their bladder
- Support regular fluid intake
- Treat constipation with appropriate medical advice
- Teach wiping from front to back
- Avoid fragranced products if they irritate the genital area

Living with it and what to expect

A single, uncomplicated UTI is usually a short-term illness. Most children return to their usual activities once their fever, pain, and urinary symptoms have settled. They do not usually need long-term restrictions on school, sport, bathing, or swimming.

Some children have another UTI months or years later. Recognising familiar symptoms can help families seek testing early, but symptoms should still be confirmed rather than treated with leftover medicine.

Follow-up is more important after repeated or unusual infections. The care team may monitor blood pressure, growth, kidney function, or scan results when there is concern about the kidneys. This is planned follow-up, not usually an emergency.

Children with constipation or bladder-emptying problems may need support over several months. Regular toilet routines and bowel treatment can take time to work. Progress may be gradual, and occasional wetting does not mean the child is being difficult.

Even when a structural difference such as reflux is found, many children continue normal school, play, and family life. The longer-term outlook is shaped by the severity of the condition, whether infections recur, and whether kidney damage is present.

When to get medical help

Seek prompt medical advice if a child has pain when urinating, new urinary frequency, unexplained wetting, blood in the urine, or fever without a clear cause. A urine test may be needed.

A baby younger than 3 months with a fever or possible UTI needs urgent same-day medical assessment. Young babies can become unwell quickly and may not show typical urinary symptoms.

Seek urgent same-day help for a child of any age who has:

Call emergency services if the child is difficult to wake, has severe trouble breathing, has a seizure, becomes blue, grey, very pale, or mottled, or appears seriously unwell. These can be signs of severe infection or another emergency.

Routine follow-up is appropriate for repeated UTIs, ongoing wetting, constipation, abnormal scan results, or concerns about bladder habits when the child is otherwise well.

- Fever with back or side pain
- Repeated vomiting or difficulty keeping fluids down
- Signs of dehydration, such as very little urine or a dry mouth
- Worsening symptoms or no improvement within about 48 hours of treatment
- A known kidney or urinary tract condition with new symptoms

Common questions

Can a child have a UTI without pain when peeing?

Yes. Babies and younger children may have only fever, vomiting, poor feeding, irritability, or unusual sleepiness. Even older children with a kidney infection may have fever and back pain without obvious burning during urination.

Does strong-smelling urine mean my child has a UTI?

Not by itself. Concentrated urine, some foods, vitamins, and dehydration can change its smell. A UTI is more likely when the smell occurs with fever, pain, urgency, frequent urination, or new wetting. Testing is needed to confirm it.

Can my child go to school with a UTI?

A UTI is not usually passed between children. A child can generally return when they feel well enough, have no significant fever or vomiting, and can use the toilet and take treatment as directed. School staff may need to allow easy toilet and drink access.

Why does my child keep getting UTIs?

Repeated infections may be linked to constipation, holding urine, incomplete bladder emptying, or a difference in the urinary tract. Sometimes no single reason is found. Recurrent UTIs should be reviewed because further tests or bladder and bowel support may be useful.

Will a UTI damage my child's kidneys?

Most UTIs do not cause lasting kidney damage. Risk is higher with kidney infections, repeated infections, severe illness, or urinary tract abnormalities. Selective imaging and follow-up help identify children who may need closer monitoring.

Is a child's UTI contagious?

No. The bacteria usually come from the child's own bowel area rather than from another person. Normal contact, shared classrooms, and swimming do not usually spread UTIs.

Sources

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